STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
RONALD E. STACKLER
DIRECTOR, SPRINGFIELD
BOARD OF NATURAL RESOURCES AND CONSERVATION

ILLINOIS STATE GEOLOGICAL SURVEY

NATURAL RESOURCES BUILDING, URBANA, ILLINOIS 61801 TELEPHONE 217 344-1481

Jack A. Simon, ACTING CHIEF

P. O. Box I
Warrenville, Illinois 60555
July 14, 1975

SUBJECT: Cook County - Land Pollution Control
Matteson/Project I-57

Mr. Thomas E. Cavanagh, Jr.
Permit Section
Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Mr. Cavanagh:

This is in response to your request of July 2, 1975, for a description of the hydrogeology in the vicinity of a proposed sanitary landfill site located in the W½ of the SW¼ of Section 28, T. 35 N., R. 13 E., Cook County.

The property was visited on July 9, 1975. It is located in an area of rolling, morainic topography. The site slopes gently to the north and the northern half is fairly low and poorly drained. In several areas here water was ponded in the fields, which are fallow at present. The southern half of the property is somewhat higher in elevation so that drainage is better and no ponding was observed in this area. The fields here are planted in corn.

Prior to the construction of I 57, which now forms the eastern boundary of the property, natural drainage from the site was towards the northwest into Butterfield Creek. The course of Butterfield Creek was altered when the highway was built, however, and it now flows north in a channel on the east side of the I 57 right-of-way.

There was a small swamp in the northeast corner of the site before the construction of I 57. Materials from this swamp were excavated for highway borrow, however, so there is now a small lake here. The shores of this lake are still marshy in some places and support cattails. The water level in the borrow pit was about five feet below ground surface and this level probably represents the top of the zone of saturation on the site.

On the north and south banks of the borrow pit fine-grained material containing numerous small pebbles is exposed. Maps in the Illinois State Geological Survey files identify this material as silty clay till of the Wadsworth Member of the Wedron Formation. Enclosed are the logs of two bridge borings drilled by the Illinois Division of Highways along I 57 east of the site at Saulk Trail and at the Elgin, Joliet, and Eastern Railroad crossing. Both of these logs confirm the presence of predominantly silty clay to a depth of 49 and 51 feet.

Maps and well logs in our files indicate that the glacial drift is approximately 75 to 80 feet thick on the site. These sources also indicate that in this area no sand or gravel aquifers occur within the body of the drift — that is, there are no sands or gravels within the drift more than 15 feet thick. Thin lenses and/or stringers of sand and gravel are commonly scattered throughout this drift, however.

Within one mile of this site, we have record of only five wells, although others maybe present for which we have no record. These wells all use the Silurian dolomite for water supply and they are all cased through the drift.

Disposal of solid waste at this site is not likely to have an adverse affect on ground-water supplies in the area. No sands and gravels are present in the drift capable of supplying water to wells, and the drift underlying the site is more than adequate in thickness and in permeability to prevent the downward migration of dissolved solids into the dolomite. Any leachate produced by landfilling will migrate only a very limited distance through the relatively impermeable till and will be attenuated rapdily.

Any small sand or gravel bodies encountered while trenching for the landfill should, of course, be sealed off and one or two borings on the site would also be appropriate to definitely ascertain the sequence of materials on the property.

Yours truly,

Jean I. Larsen

Jean I. Larsen
Associate Geologist
Northeastern Illinois Office
Section of Ground-Water Geology
and Geophysical Exploration

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Encls.
cc: Onderdank
Leland

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	Thickness	Top	Bottom
Bridge Boring #B-1			
Section 0102-1001HB			
Station 40+57			
15' South Centerline Sauk Trail			
Black organic clay; brown and gray sandy silty clay			6
Brown and gray sandy silty clay; gray gravelly silty clay; brown and gray clay			7.5
Brown and gray sandy silty clay; brown silty sandy gravelly clay; brown sandy silty clay			11
Gray silty clay; boulders at about 13'			13.5
Gray clay			18.6
Gray sandy silty clay			21
Gray clay; gray clayey gravel			23.5
Gray silty clay; gray clay			26
Gray sandy silty clay			28.6
Gray stony sandy silty clay			38.7
Gray sandy silty clay; gray silty clayey sand			41.2
Gray [illegible] silty clay; gray cl[illegible]			43.6
Gray sandy silty livery clay; gray sandy clayey gravel			46.1
[illegible] sandy silty clay			48.7
[illegible] sandy silty clay			51.1
			T.D.
Copy of Highway Division log filed in Groundwater Section			
NO ENVELOPE			
*Sauk Trail over FAI 57			

COMPANY Illinois Division of Highways
FARM Sauk Trail* NO. B-1
DATE DRILLED November 30, 1954 COUNTY NO.
AUTHORITY Log by Division of Highways
ELEVATION 729.2' G.L.
LOCATION
COUNTY [illegible]

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	Thickness	Top	Bottom
Bridge Boring #B-1			
Section 0202-1002 SB			
Station 112+67			
20' East Centerline 57 NB			
Black organic clay and brown silty clay			3.5
Brown silty clay			6
Brownish gray silty clay; gray silty clay			8.6
Gray gravelly silty clay			13.6
Gray gravelly silty clay and gray clayey sandy silty gravel			16
Gray silty clay and water			18.6
Gray gritty silty clay and water			21.1
Gray gravelly silty sandy clay			23.6
Gray silty sandy gravel			26
Gray sandy silty clay and water			28.6
Gray sandy silty clay and water; gray sand; gray clayey silty sandy gravel			31.1
Grayish brown sandy silty clay; water at about 35.5'			36.1
Gray sandy silty gravelly clay; gray livery silty clay			38.6
Gray clayey silty gravel; gray clayey sandy gravel; grayish brown silty clay			41.1
Gray sandy silty clay			44.6
Grayish brown silty sandy clay			49.7
			T.D.
Copy of Highway Division log filed in Groundwater Section			
NO ENVELOPE			
*FAI 57 over E. J. & E. RR.			

COMPANY Illinois Division of Highways
FARM FAI 57* NO. B-1
DATE DRILLED October 5, 1964 COUNTY NO.
AUTHORITY Log by Division of Highways
ELEVATION 721' G.L.
LOCATION SE NW [illegible]
COUNTY